

In The Claims

Please amend claims 1-3, 6-12 and 15-18 as follows below.

Please cancel claims 4-5 and 13-14 without prejudice.

Please add new claims 19-39 as follows below.

The following is a complete set of claims as amended by this Response.

1        1. (Currently Amended) A method of modifying a SPICE  
2 netlist of a circuit design using a simulation template to  
3 perform a pre-determined analysis involving circuit  
4 ~~parameter~~ parameter perturbations, comprising:  
5            adding a first simulation routine to said SPICE netlist  
6 to perform a reference simulation of said SPICE netlist to  
7 arrive at nominal values for selected vector measurements;  
8            adding a perturbing routine to said SPICE netlist for  
9 altering circuit parameter values of said circuit design in  
10 a pre-determined manner;  
11          adding a second simulation routine to said SPICE  
12 netlist for performing simulations of said circuit ~~desing~~  
13 design for respective altered circuit parameter values to  
14 arrive at respective selected vector measurements; and  
15          adding an analysis routine to said SPICE netlist for  
16 manipulating at least one of said selected vector  
17 measurements in accordance with said pre-determined  
18 analysis.

1        2. (Currently Amended) The method of claim 1,  
2 further including  
3        ~~the step of~~ adding tolerances in the SPICE netlist for  
4 said circuit parameters.

1        3. (Currently Amended) The method of claim 1,  
2 further including  
3        ~~the step of~~ removing parameter and vector save  
4 statements in said SPICE netlist.

1        4-5. (Cancelled)

1        6. (Currently Amended) The method of claim 1 [[5]],  
2 wherein  
3        said pre-determined analysis includes  
4              a sensitivity analysis involving determining a  
5              difference between said respective selected vector  
6              measurements and said nominal values for said selected  
7              vector measurement measurements.

1        7. (Currently Amended) The method of claim 6,  
2 wherein  
3        said pre-determined analysis further includes  
4              a root summed square analysis involving a sum of the  
5              square of said difference between said respective selected  
6              vector measurements and said nominal values for said  
7              selected vector measurement measurements.

1        8. (Currently Amended) The method of claim 6,  
2 wherein

3       said pre-determined analysis further includes  
4                [[a]] an extreme value analysis involving a  
5        determination of a maximum of said difference between  
6        said respective selected vector measurements and said  
7        nominal values for said selected vector measurement  
8       measurements when said circuit parameter values are at  
9       their extreme tolerance values.

1       9. (Currently Amended) The method of claim 6,  
2 wherein

3       said pre-determined analysis further includes  
4                a worst case by sensitivity analysis involving a  
5        maximum of an absolute value of said difference between  
6        said respective selected vector measurements and said  
7        nominal values for said selected vector measurement  
8       measurements.

1       10. (Currently Amended) A computer readable medium  
2 having stored therein a simulation template for modifying a  
3 SPICE netlist of a circuit design to perform a pre-  
4 determined analysis involving parameter perturbations,  
5 comprising:

6               a routine to add to said SPICE netlist for performing a  
7       reference simulation of said SPICE netlist to arrive at  
8       nominal values for selected vector measurements;

9               a routine to add to said SPICE netlist for altering  
10      circuit parameter values of said circuit design in a pre-  
11      determined manner;

12        a routine to add to said SPICE netlist for performing  
13    simulations of said circuit design for respective altered  
14    circuit parameter values to arrive at respective selected  
15    vector measurements; and

16        a routine to add to said SPICE netlist for manipulating  
17    at least one of said selected vector measurements in  
18    accordance with said pre-determined analysis.

1            11. (Currently Amended) The computer readable medium  
2    of claim 10, wherein  
3            said simulation template further includes  
4            a command to add tolerances in the SPICE netlist  
5    for said circuit parameters.

1            12. (Currently Amended) The computer readable medium  
2    of claim 10, wherein  
3            said simulation template further includes  
4            a command to remove parameter and vector save  
5    statements in said SPICE netlist.

1            13-14. (Cancelled)

1            15. (Currently Amended) The computer readable medium  
2    of claim 10 [[14]], wherein  
3            said pre-determined analysis includes  
4            a sensitivity analysis involving determining a  
5            difference between said respective selected vector  
6            measurements and said nominal values for said selected  
7            vector measurement measurements.

1       16. (Currently Amended) The computer readable medium  
2 claim 15, wherein  
3            said pre-determined analysis further includes  
4                a root summed square analysis involving a sum of  
5                the square of said difference between said respective  
6                selected vector measurements and said nominal value for  
7                said selected vector measurement measurements.

1       17. (Currently Amended) The computer readable medium  
2 of claim 15, wherein  
3            said pre-determined analysis further includes  
4                [[a]] an extreme value analysis involving a  
5 determination of a maximum of said difference between  
6                said respective selected vector measurements and said  
7                nominal values for said selected vector measurement  
8                measurements when said circuit parameter values are at  
9                their extreme tolerance values.

1       18. (Currently Amended) The computer readable medium  
2 of claim 15, wherein  
3            said pre-determined analysis further includes  
4                a worst case by sensitivity analysis involving a  
5 maximum of an absolute value of said difference between  
6                said respective selected vector measurements and said  
7                nominal values for said selected vector measurement  
8                measurements.

1       19. (New) The method of claim 1, wherein

2        said circuit parameter values of said circuit design  
3    are one of resistance of a resistor, capacitance of a  
4    capacitor, and inductance of an inductor.

1        20. (New) The method of claim 1, wherein  
2        said at least one selected vector measurement is  
3    voltage at a node of said circuit design.

1        21. (New) The method of claim 1, wherein  
2        said at least one selected vector measurement is  
3    current along a branch of said circuit design.

1        22. (New) The method of claim 1, wherein  
2        said at least one selected vector measurement is power  
3    dissipation in a component of said circuit design.

1        23. (New) The method of claim 22, wherein  
2        said component of said circuit design is one of a  
3    resistor, a capacitor, and an inductor.

1        24. (New) The method of claim 1, wherein  
2        only one circuit parameter value of said circuit design  
3    is altered at a time by the perturbing routine.

1        25. (New) The computer readable medium of claim 10,  
2    wherein  
3        said circuit parameter values of said circuit design  
4    are one of resistance of a resistor, capacitance of a  
5    capacitor, and inductance of an inductor.

1        26. (New) The computer readable medium of claim 10,  
2 wherein  
3            said at least one selected vector measurement is  
4 voltage at a node of said circuit design.

1        27. (New) The computer readable medium of claim 10,  
2 wherein  
3            said at least one selected vector measurement is  
4 current along a branch of said circuit design.

1        28. (New) The computer readable medium of claim 10,  
2 wherein  
3            said at least one selected vector measurement is power  
4 dissipation in a component of said circuit design.

1        29. (New) The computer readable medium of claim 28,  
2 wherein  
3            said component of said circuit design is one of a  
4 resistor, a capacitor, and an inductor.

1        30. (New) The computer readable medium of claim 10,  
2 wherein  
3            only one circuit parameter value of said circuit design  
4 is altered at a time by the perturbing routine.

1        31. (New) A method of analyzing a SPICE netlist of a  
2 circuit design, the method comprising:  
3            (a) providing a SPICE netlist of a circuit design;  
4            (b) selecting a selected vector measurement of the  
5 circuit design;

6           (c) simulating the SPICE netlist of the circuit design  
7 using nominal circuit parameter values to determine a  
8 nominal vector measurement associated with the selected  
9 vector measurement;

10          (d) altering at least one circuit parameter value of a  
11 component in the SPICE netlist in a pre-determined manner to  
12 generate at least one altered circuit parameter value;

13          (e) simulating the SPICE netlist of the circuit design  
14 with the at least one altered circuit parameter value to  
15 determine an altered vector measurement associated with the  
16 selected vector measurement;

17          (f) repeating steps (d) and (e) with the at least one  
18 circuit parameter value to generate a plurality of altered  
19 circuit parameter values and to determine a plurality of  
20 altered vector measurements of the circuit design; and

21          (g) determining a difference between the plurality of  
22 altered vector measurements and the nominal vector  
23 measurement to generate a sensitivity in the vector  
24 measurement of the circuit design in response to alterations  
25 in the at least one circuit parameter value of the component  
26 in the SPICE netlist.

1           32. (New) The method of claim 31, wherein  
2 a simulation template is used to perform steps (b)-(g).

1           33. (New) The method of claim 31, wherein  
2 the at least one circuit parameter value of the  
3 component in the SPICE netlist is altered within a tolerance  
4 of the component.

1       34. (New) The method of claim 31, wherein  
2           the at least one circuit parameter value of a component  
3       is one of resistance of a resistor, capacitance of a  
4       capacitor, and inductance of an inductor.

1       35. (New) The method of claim 31, wherein  
2           the vector measurement of the circuit design is one of  
3       voltage at a node, current along a branch, and power  
4       dissipation in the component.

1       36. (New) The method of claim 31, wherein  
2           only one circuit parameter value of said circuit design  
3       is altered at a time.

1       37. (New) The method of claim 31, further comprising:  
2           determining a sum of the differences between the  
3       plurality of altered vector measurements and the nominal  
4       vector measurement, squaring the sum of the differences, and  
5       taking the square root of the squared sum of the differences  
6       to determine a root summed square (RSS) for the vector  
7       measurement of the circuit design in response to alterations  
8       in the at least one circuit parameter value of the component  
9       in the SPICE netlist.

1       38. (New) The method of claim 31, wherein  
2           the at least one circuit parameter value is altered to  
3       a maximum value and the SPICE netlist of the circuit design  
4       is simulated to determine a first altered vector  
5       measurement, and

6       the at least one circuit parameter value is altered to  
7    a minimum value and the SPICE netlist of the circuit design  
8   is simulated to determine a second altered vector  
9   measurement,

10      and the method further comprises  
11           determining a maximum of a first absolute value of  
12          the first altered vector measurement less the nominal  
13          vector measurement and a second absolute value of the  
14          second altered vector measurement less the nominal  
15          vector measurement to determine an extreme value  
16          analysis (EVA) for the vector measurement of the  
17          circuit design.

1       39. (New) The method of claim 31, further comprising:  
2           determining scalar differences between the plurality of  
3          altered vector measurements and the nominal vector  
4          measurement,  
5           taking the absolute value of the scalar differences to  
6          generate absolute scalar differences,  
7           determining a maximum value of the absolute scalar  
8          differences to determine a worst case by sensitivity (WCS)  
9          for the selected vector measurement of the circuit design.